Case Report

Reiter's disease: Circinate balanitis as alone preceding presentation - Successfully treated with pimecrolimus 1% cream

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Abstract

Circinate balanitis, although a common manifestation of reactive arthritis, is usually an associated finding present along with the triad of arthritis, conjunctivitis, and urethritis. It is rarely seen as the only preceding manifestation of reactive arthritis. We hereby report a case of circinate balanitis as alone preceding presentation of reactive arthritis that was successfully treated with topical pimecrolimus 1% cream.

Key words: Circinate balanitis, pimecrolimus, Reiter's disease

INTRODUCTION

Reactive arthritis or Fiessinger-Leroy disease is a genetically determined disease characterized by the triad of urethritis or cervicitis, conjunctivitis, and arthritis,[1] which closely follows lower urogenital or enteric infection. Mucocutaneous findings such as circinate balanitis (30–40%), keratoderma blenorrhagicum (15%), oral ulcers (17%) and dystrophy of nails (20–30%) are also associated with reactive arthritis.[2] Our case presented with circinate balanitis as the only initial clinical finding, which otherwise is the most common finding associated with reactive arthritis, but is rarely seen as a preceding finding. Hence, this case is being reported for its rare presentation.

CASE REPORT

A 22-year-old married male presented with asymptomatic superficial lesions present over the glans and under surface of prepuce since 1-year. There was an increase in size of lesions in last 1 month. He was treated elsewhere with oral antibiotics and topical antifungal preparations assuming it to be an infection, but without any relief. History revealed that he had diarrhea about 14 months back. Patient also had mild lower back pain with morning stiffness and left knee joint pain since 6 months. He had no fever, oral lesions, eye complaints, or abdominal pain. Patient denied any history of extramarital sexual contact.

Examination revealed multiple well-defined superficial erosions of size 0.5–2.5 cm, round to oval in shape with irregular margins, which coalesced at places to form circinate pattern over the glans and under surface of prepuce [Figures 1 and 2]. From the above findings, possibilities of reactive arthritis and genital psoriasis were considered.

Laboratory investigations showed mildly raised total leukocyte count 11,700/mm^3 (normal 4000–11000). Other investigations, including biochemistry panel were normal. Tzanck smear, Gram-stain and potassium hydroxide stain were also normal. Viral markers such as hepatitis B surface antigen, antihepatitis C antibodies, human immune deficiency

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virus (HIV) antigen, and venereal disease research laboratory tests were nonreactive. Stool culture and urine culture did not grow any organism. C-reactive protein (CRP) (7.31 mg/dl, normal <0.6 mg/dl) and human leukocyte antigen (HLA) B-27 were positive. Serological studies were not done due to nonavailability of facilities at our center. Radiologically magnetic resonance imaging lumbosacral spine and sacroiliac joints showed straightening of the lumbar spine and right sided sacroiliitis.

Histopathology of lesions from the glans showed parakaratosis containing neutrophils forming intracorneal and superficial epidermal pustules resembling spongiform pustules. Mucosal epithelium showed psoriasiform hyperplasia. Lymphocytic inflammation with admixed neutrophils was seen in upper submucosa. Special stain Periodic Acid Schiff was negative for fungus [Figure 3]. Thus, histopathological examination was consistent with genital psoriasis and reactive arthritis.

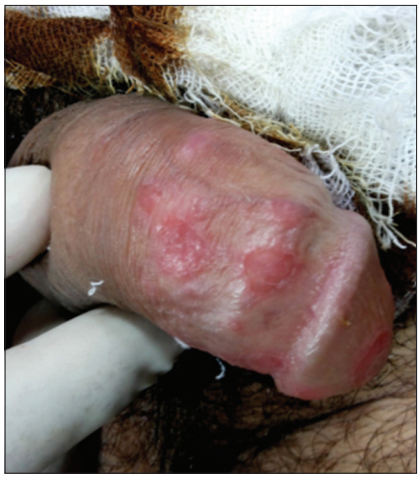

Figure 1: Circinate lesions present over glans before treatment

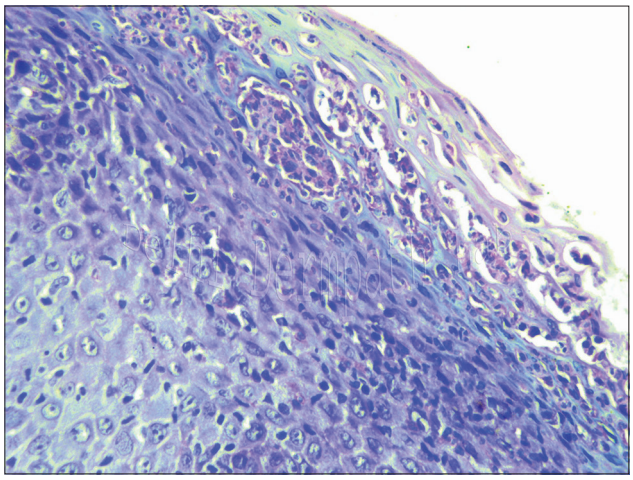

Figure 3: Various psoriasiform changes seen on histopathological examination

Based on the above clinical and histopathological findings, diagnosis of reactive arthritis was made. Patient was treated for circinate balanitis with pimecrolimus 1% cream twice daily for 3 weeks. Lesions cleared completely, and no recurrence was seen subsequently [Figures 4 and 5]. Patient was referred to rheumatologist for management of arthritis.

DISCUSSION

Reactive arthritis was first described by Hans Conrad Julius Reiter, a German physician during the First World War in 1916. In the same year, Fiessinger and Leroy published similar finding as "oculo-urethro-synovial syndrome." Although it is a disease of young males with HLA-B27 associated with 80% of cases,[3] other HLA types that are linked with HLA-B27 and other age groups are not excluded.[4] Caucasians are the most commonly affected, probably because of higher prevalence of HLA-B27 in this population group.[5] It occurs in response to enteric infections such as Salmonella,

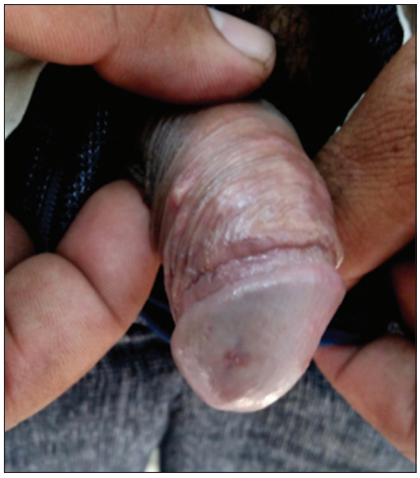

Figure 2: Lesions present on under surface of prepuce before treatment

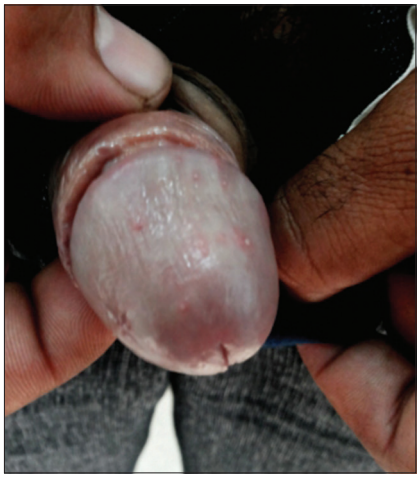

Figure 4: Post-treatment complete resolution of lesions from glans

Table 1: Various studies showing topical calcineurin inhibitors as treatment modalities for balanitis

Study	Number of patients	Results
Herrera-Esparza R, Medina F, Avalos-Díaz E. Tacrolimus therapy for circinate balanitis associated with reactive arthritis. J Clin Heumatol 2009;15:377-9	4	Topical 0.1% tacrolimus was used, with excellent results, as the balanitis lesions were cleared during the 1st week of topical therapy
de Almeida, H. L. and de Oliveira Filho, U. L. (2005), Topical pimecrolimus is an effective treatment for balanitis circinata erosiva. International Journal of Dermatology 44:888-9	2	Topical pimecrolimus is an effective treatment for balanitis circinata erosiva
Georgala S, Gregoriou S, Georgala C, *et al.* Pimecrolimus 1% cream in nonspecific inflammatory recurrent balanitis. Dermatology 2007;215:209-12	26	Pimecrolimus 1% cream is promising in relieving symptoms and signs of nonspecific balanitis during flares and controlling the disease during long-term follow-up

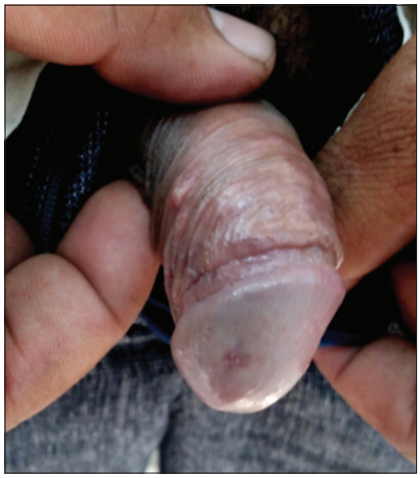

Figure 5: Post-treatment complete resolution of lesions from under surface of prepuce

Shigella, Yersinia, Campylobacter[6] or urethral infection from Chlamydia trachomatis.[7]

It has been proposed that damaged exogenous pathogen-associated molecular patterns, derived from microbes, can disseminate upwards via the pelvic and spinal lymphatic pathways and activate toll-like receptors (TLRs). Their activation triggers signaling pathways that result in the expression of immune response genes and cytokine production. First it was thought that TLR-4 expression by neutrophil was responsible for host clearance. However, recent human data suggest that TLR-2, not TLR-4, is important in determining reactive arthritis susceptibility after Salmonella infection.[8] Severe cases of reactive arthritis can occur as a late manifestation of HIV. Other rare factors, which can induce the disease are immunotherapy with Bacillus Calmette-Guérin and interferon α, or following hepatitis B vaccination.[9,10]

One of the various treatment modalities tried for mucosal lesions include use of topical steroids like hydrocortisone or triamcinolone. A combination of keratolytic agents likes 10% salicylic acid ointment with hydrocortisone 2.5% cream, and oral aspirin has also been reported to clear circinate balanitis. Topical 0.1% tacrolimus or pimecrolimus 1% cream has been used in refractory case with variable success [Table 1].

The diagnosis in our patient rested on a constellation of signs and symptoms suggestive of reactive arthritis which included diarrhea, arthritis and circinate balanitis. Other diagnosis considered was genital psoriasis because of the similar histopathological findings. However, the above mentioned clinical findings along with HLA-B27 and CRP positivity favored diagnosis of reactive arthritis. Patient was treated successfully with pimecrolimus 1% cream. The interesting finding in our patient was the presence of circinate balanitis as the preceding feature, which has been rarely reported to the best of our knowledge.[11-14]

CONCLUSION

This case is being reported for its rarity in which circinate balanitis is the only presenting feature of Reiter's disease, which was successfully treated with topical 1% pimecrolimus cream. However, further clinical trials and research is needed to study underlying mechanism of action of topical pimecrolimus in its management.

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